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ABSTRACT

Expectations of 432 college students regarding the following six teaching formats were studied: lecture, discussion, laboratory, personalized attention, computer-assisted instruction, and television instruction. Factor analysis procedures revealed three factors for each format: (1) evaluative had characteristics of preference and goodness and/or badness, and is connative; (2) potency had the characteristic of ascribed strength in reference to the evaluative factor; and (3) activity had characteristics of intensity and direction in reference to both the potency and evaluative factors. There were no significant differences in expectations regarding teaching format by class level. Formats that students clearly preferred were the personalized and lecture approaches. The discussion format was suggested as a third choice, with reservations possibly because of uncertainty with instructor expectations and the student's ability to express himself or herself. Laboratory and computer-assisted formats were seen as worthy, but elicited weak ascribed feelings of potency and activity. Television was clearly a nonpreferred format. (SW)

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AN ANALYSIS OF STUDENT EXPECTATIONS REGARDING CONCEPTS OF TEACHING FORMAT

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Introduction: Faculty perceptions and attitudes toward teaching formats are significantly important to the development of good teaching. It is critical that perceptions of a format and the student be as accurate as possible. Substantial research has been conducted in the general area of instruction (Aleamoni, 1976; Ladd and Lipset, 1975; Perry, 1970). The diversity of the research within the literature suggests that instructional design has been thoroughly investigated; however, teaching evaluations continually suggest that the teaching/learning process within undergraduate education can be improved. Understanding the student should enable the teacher to develop effective delivery consistent with the teaching format. The following six formats were selected for the study: LECTURE - presented by an instructor with little or no student-professor interaction. Essentially a one-way communication. The class may be large or small. DISCUSSION - the topic is controlled by an instructor with the majority of all speaking coming from the students. LABORATORY - the session is controlled by an instructor who explains performance requirements of the student. This is a practical, hands-on, performing situation. PERSONALIZED - the student is directed on a one-to-one basis with heavy use

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of course materials (not tutoring). All requirements of learning are mastery or competency based. Is individually paced and may be structured in module form. COMPUTER-ASSISTED - the student is expected to work/study on his/her own accord with essentially all assistance being limited to a computer/computer program. TELEVISION - the television session informs/directs the student without any personal contact and without any verbal interaction. The class may be large or small.

Methods: A representative sample (432 undergraduates) of students was requested to respond to a semantic differential questionnaire. Demographic data were collected to include: classification, overall grade point average, sex, age range, general area of study (1. Social Sciences/Humanities, and 2. Science/Subject Matter). Data analyses were appropriate statistical applications of Cross Tabs with Chi Square, Factor Analysis, Univariate F-tests, and Multiple Tests of Significance. Level of confidence was set at .05.

Results: Chi Square analysis for the demographic characteristics revealed statistical significance in two areas; GPA and Age Groups. Analysis for Sex by GPA (Table 1) revealed significance at the 0.0029 level. Analysis for Sex by Age Group (Table 2) revealed significance at the 0.05 level. Seventy-three plus percent (73.8) of all respondents were found to be within the two youngest age groups. Seventy-seven percent (77.0) of the males were within the 19

to 22 age ranges with only 70 percent of the females within the 19 to 22 age ranges.

F-tests for the demographic variables (Table 2) found significance for GPA at the 0.003 level. This was additionally confirmed with three tests for significance at the 0.007 level.

Factor Analysis procedures revealed three factors for each format (Table 3). For each format, Factor 1 was Evaluative; Factor 2 was Potency; Factor 3 was Activity. Evaluative has characteristics of "goodness and/or badness," "preference," and is "connotative." Potency has the characteristic of "ascribed strength" in reference to the Evaluative factor. Activity has characteristics of "intensity" and "direction," in reference to both Potency and Evaluative. All factors are critical to the interpretation of variance within formats. Loadings for Factor 1 across all formats suggest that all were good. Loadings for Factor 2 across all formats reveal a variety of intensities for Potency. Lecture, Personalized, Discussion, and Computer-Assisted formats elicit a positive, but lower-level of intensity for ascribed feeling. Loadings for Factor 2 of Television suggest that TV does not elicit a positive intensity for ascribed feeling. Loadings for Factor 2 of the Laboratory format suggest an almost neutral intensity of ascribed feeling. Loadings for Factor 3 of the Lecture format suggest that Lecture is a format connotating a preference with acceptable limitations. Loadings for Factor 3 suggest that Discussion is a format connotating a

positive, but lower-level preference. The paucity of loadings for Factor 3 of the Television format and the adjectives loaded at .400 or greater suggest little direction and intensity in favor of the TV format. Loadings for Factor 3 of the Laboratory format suggest a limited intensity and direction toward the format. Loadings for Factor 3 of the Personalized format suggest a positive intensity and direction toward the format. Loadings for Factor 3 of the Computer-Assisted format suggest a low-level intensity and direction toward the format.

Discussion: The hypothesis that there would be no statistical difference between Freshman, Sophomore, Junior, and Senior students in expectations regarding teaching formats was accepted. For this sample, the Grade Point Average (GPA) of males was significantly less than the GPA for females. The majority of the sample for both sexes was distributed within the two youngest age categories, and this, along with findings for sex by age group, suggests that GPA differences are located at the freshman year level primarily; freshman and sophomore levels collectively. There were no findings of significance for sex by year in college and for sex by major area of study. In looking across all variables, GPA was the one variable clearly suggesting significant differences. The age group variable, although significant, may be viewed as having a closer relationship to GPA than any other study variable. TEACHING FORMATS -

The data clearly suggest that all formats were viewed as positive (good). This goodness is deceiving, however, unless viewed along with Potency and Activity. Lecture loaded positive for Evaluative, and was seen as having a good level of ascribed feeling for Potency. Activity loadings clearly suggest that lecture may be preferred for a variety of reasons, but it is an impersonal and passive format. Discussion loaded positive for Evaluative and was seen to exhibit a low-level of ascribed feeling for Potency. Activity loadings were limited and suggest that the personal nature of the discussion format restricts it as a strong preference. Television loaded positive for Evaluative, but was seen to exhibit a clear negative intensity of ascribed feeling for Potency. For Activity, only two loadings were exhibited and both are indicative of little to none for direction and intensity. TV is clearly a non-preferred format. Laboratory loaded positive for Evaluative and was seen to exhibit only two Potency loadings which suggests a neutral ascribed feeling. Three Activity loadings suggest some direction and intensity for the format, but clearly not strong. Personalized loaded positive for Evaluative and was seen to have a clearly positive ascribed feeling for Potency. Two loadings found for Activity were very strong and suggest a preferential intensity and direction. Computer-Assisted loaded positive for Evaluative, but was seen to elicit mixed loadings for Potency (2 pos,2 neg). Ascribed feeling for the format is clearly weak. Three

loadings for Activity were mixed (2 pos, 1 neg) and the nature of the adjectives suggests a positive, but low-level of intensity and direction.

The formats viewed as clear preferences were "personalized" and "lecture." The "discussion" format was suggested as a "third choice", with reservations possibly because of uncertainty with instructor expectations and the student's ability to express him/her self. Laboratory and Computer-Assisted are seen as worthy formats, but eliciting weak ascribed feelings of Potency and Activity. Television is clearly a non-preferential format. The ability of an instructor to effectively utilize a given format may be the key in helping convince students of the desirability of any given format. This would suggest that an instructor must be skilled in the use of any format selected as a delivery mode for instruction.

TABLE 1

Cross Tabulation of Sex by Grade Point Average

Sex	3.6-4.0	3.0-3.5	2.6-2.9	2.0-2.5	1.9-0.0	No GPA	
Male	28	61	73	58	7	20	247 56.8
Female	29	72	49	24	1	13	188 43.2
Column Total	57	133	122	82	8	33	435
Per Cent	13.1	30.6	28.0	18.9	1.8	7.6	100.0

x^2 = 18.06; d.f. 5; significance = 0.0029

Cross Tabulation of Sex by Year In College

Sex	FRESHMAN	SOPHMORE	JUNIOR	SENIOR	
Male	79	59	67	43	248 56.8
Female	56	53	39	41	189 43.2
Column Total	135	112	106	84	437
Per Cent	30.9	25.6	24.3	19.2	100.0

x^2 = 3.78; d.f. 3; significance = 0.2854

Cross Tabulation of Sex by Major Specialization Area

Sex	SOCIAL SCIENCE	SCIENCE ORIENTED	
Male	169	76	245 57.0
Female	137	48	185 43.0
Column Total	306	124	430
Per Cent	71.2	28.8	100.0

x^2 = 1.08; d.f. 1; significance = 0.2972

TABLE 2

Cross Tabulation of Sex by Age Group

Sex	19-20	21-22	23-24	25-26	27 AND OVER	
Male	126	63	26	13	18	246 56.6
Female	98	34	19	9	29	189 43.4
Column Total	224	97	45	22	47	435
Per Cent	51.5	22.3	10.3	5.1	10.8	100.0

$x^2 = 9.25$; d.f. 4; significance = 0.05

Univariate F-tests, and

Multivariate Tests of Significance for Sex by

Years In College, Age Group, Grade Point Average

and Major Specialization Area

Univariate F-tests

Variable	MS	F	Sig. of F
YEAR	.22233	.18160	.670
AGE	5.89015	3.27607	.071
GPA	16.89187	8.91955	.003
MAJOR	.63061	1.68606	.195

Multivariate Tests of Significance

Test Name	Value	Approx. F	Sig. of F
Pillais	.03223	3.59666	.007
Hotellings	.03330	3.59666	.007
Wilks	.96777	3.59666	.007

TABLE 3

Factor Analytic Solutions Rotated To The

Varimax Criterion (COVARIMIM) For The

Six Teaching Formats

Adjective Pairs	Lecture			Discussion			Personalized		
	F1	F2	F3	F1	F2	F3	F1	F2	F3
1. Good-Bad	.703	-.167	-.080	.582	.417	.144	.711	-.312	.001
2. Easy-Difficult	.548	-.293	.279	.460	.409	.441	.488	-.213	.623
3. Undemocratic-Democratic	.368	.437	.257	.453	-.571	-.079	.551	.463	-.165
4. Stale-Fresh	.570	.499	.164	.627	-.511	-.051	.670	.407	-.013
5. Reliable-Uncertain	.623	-.361	-.071	.531	.414	-.262	.650	-.331	-.114
6. Inferior-Superior	.503	.290	.418	.739	-.195	-.010	.704	.294	-.114
7. Successful-Unsuccessful	.692	-.374	-.017	.656	.449	-.074	.657	-.398	-.073
8. Complex-Simple	.390	-.118	.495	.345	-.127	.489	.396	.165	.716
9. Fast-Slow	.255	-.166	.001	.370	.331	-.176	.433	-.244	.191
10. Restrained-Free	.434	.523	-.084	.568	-.568	-.018	.521	.497	.013
11. Unpleasant-Pleasant	.659	.371	.045	.686	-.295	-.153	.705	.357	.053
12. Efficient-Inefficient	.597	-.457	-.105	.614	.431	-.254	.598	-.421	-.151
13. Personal-Impersonal	.408	.220	-.594	.333	.014	.622	.578	-.269	-.264
14. Strong-Weak	.626	-.355	-.264	.639	.427	-.065	.671	-.321	-.060
15. Passive-Active	.382	.506	-.404	.560	-.568	-.036	.639	.346	-.202
Per Cent of Total Variance	28.5	13.4	8.1	31.2	17.1	7.0	36.8	12.1	7.6

F1: Evaluative; Preference; Connotative
F2: Potency; Ascribed Strength
F3: Activity; Intensity Direction

TABLE 3 (Continued)

Adjective Pairs	Computer-assisted			Television			Laboratory		
	F1	F2	F3	F1	F2	F3	F1	F2	F3
1. Good-Bad	.713	-.149	.167	.688	.328	-.129	.646	.077	-.244
2. Easy-Difficult	.597	.154	.468	.608	.335	.203	.517	.352	.403
3. Undemocratic-Democratic	.520	.313	-.213	.625	-.406	-.009	.600	-.249	.293
4. Stale-Fresh	.614	.215	-.243	.721	-.393	.052	.666	-.387	.178
5. Reliable-Uncertain	.549	-.511	-.016	.564	.367	.185	.636	.200	-.077
6. Inferior-Superior	.591	.101	-.496	.726	-.256	.049	.721	-.286	.205
7. Successful-Unsuccessful	.705	-.373	.090	.749	.335	-.078	.687	.221	-.296
8. Complex-Simple	.409	.414	.487	.472	.128	.739	.277	.594	.470
9. Fast-Slow	.635	-.125	.214	.454	.201	-.508	.504	.393	.143
10. Restrained-Free	.507	.456	-.186	.575	-.493	.034	.574	-.207	.268
11. Unpleasant-Pleasant	.694	.136	-.142	.785	-.306	.106	.710	-.109	.124
12. Efficient-Inefficient	.642	-.451	-.015	.641	.406	-.004	.663	.152	-.335
13. Personal-Impersonal	.508	.339	.269	.664	-.007	-.150	.515	.087	-.433
14. Strong-Weak	.719	-.199	-.013	.745	.317	-.216	.658	.138	-.328
15. Passive-Active	.557	.082	-.286	.585	-.489	-.179	.522	-.575	-.046
Per Cent of Total Variance	36.5	9.2	7.3	42.0	11.7	6.8	36.5	9.7	8.1

F1: Evaluative; Preference; Connotative
F2: Potency; Ascribed Strength
F3: Activity; Intensity Direction

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